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1

SEQUENCE LISTING

<110> KIM, JIN-SOO  
PARK, KYUNG-SOON  
JANG, YOUNG-SOON

<120> REGULATION OF PROKARYOTIC GENE EXPRESSION WITH ZINC  
FINGER PROTEINS

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<150> PCT/KR04/003420  
<151> 2004-12-23

<150> 60/532,362  
<151> 2003-12-23

<160> 157

<170> PatentIn Ver. 3.3

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Lys Thr His Thr Arg Thr His  
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Thr Arg His Arg Arg Ile His  
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Thr Gln His Arg Arg Ile His  
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Thr Arg His Arg Arg Ile His  
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<210> 34

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1 5 10 15  
Lys Thr His Thr Arg Thr His  
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Thr Lys His Lys Lys Ile His  
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Thr Arg His Arg Arg Ile His  
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Val Cys Gly Lys Ala Phe Arg His Ser Ser Ser Leu Val Arg His Gln  
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Arg Cys Lys Tyr Cys Asp Arg  
50 55 60

Ser Phe Ser Ile Ser Ser Asn Leu Gln Arg His Val Arg Asn Ile His  
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Lys Gln His Thr Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Lys  
20 25 30

Gln Cys Gly Lys Ala Phe Gly Cys Pro Ser Asn Leu Arg Arg His Gly  
35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Arg Cys Lys Tyr Cys Asp Arg  
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Ser Phe Ser Ile Ser Ser Asn Leu Gln Arg His Val Arg Asn Ile His  
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<212> PRT

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 20 25 30

Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr His  
 35 40 45

Thr Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly  
 50 55 60

Lys Ser Phe Arg Gln Ser Thr His Leu Thr Arg His Arg Arg Ile His  
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Thr Gly Glu Lys Pro Tyr Glu Cys Asn Tyr Cys Gly Lys Thr Phe Ser  
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Val Ser Ser Thr Leu Ile Arg His Gln Arg Ile His  
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<212> PRT

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<223> Description of Artificial Sequence: Synthetic  
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 20 25 30

His Cys Gly Lys Ala Phe Ser Val Ser Ser Asn Leu Asn Val His Arg  
 35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly Lys  
 50 55 60

Ala Phe Thr Gln Ser Ser Asn Leu Thr Lys His Lys Lys Ile His Thr  
 65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Thr Gln  
 85 90 95

Ser Ser Asn Leu Thr Lys His Lys Lys Ile His  
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 20 25 30

His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu Asn Val His Lys  
 35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly Lys  
 50 55 60

Ser Phe Arg Gln Ser Thr His Leu Thr Arg His Arg Arg Ile His Thr  
 65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Pro Asp Cys Gly Lys Ser Phe Ser Gln  
 85 90 95

Ser Ser Ser Leu Ile Arg His Gln Arg Thr His  
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 20 25 30  
 His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu Asn Val His Lys  
 35 40 45  
 Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Asp His Cys Gly Lys  
 50 55 60  
 Ala Phe Ser Val Ser Ser Asn Leu Asn Val His Arg Arg Ile His Thr  
 65 70 75 80  
 Gly Glu Lys Pro Tyr Glu Cys Asp His Cys Gly Lys Ser Phe Ser Gln  
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 Ser Ser His Leu Asn Val His Lys Arg Thr His  
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 Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln  
 35 40 45  
 Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly Lys  
 50 55 60  
 Ser Phe Arg Gln Ser Thr His Leu Thr Arg His Arg Arg Ile His Thr  
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 85 90 95  
 Ser Thr His Leu Thr Arg His Arg Arg Ile His  
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Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr  
35 40 45

His Thr Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Asp His Cys  
50 55 60

Gly Lys Ser Phe Ser Gln Ser Ser His Leu Asn Val His Lys Arg Thr  
65 70 75 80

His Thr Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly Lys Ser Phe  
85 90 95

Arg Gln Ser Thr His Leu Thr Arg His Arg Arg Ile His  
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Thr Gln His Arg Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Met  
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Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu Thr Arg His Gln  
35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly Lys  
50 55 60

Ser Phe Arg Gln Ser Thr His Leu Thr Arg His Arg Arg Ile His Thr  
65 70 75 80

Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln  
 85 90 95

Ser Thr His Leu Thr Arg His Arg Arg Ile His  
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Asn Val His Lys Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Asp  
 20 25 30

His Cys Gly Lys Ala Phe Ser Val Ser Ser Asn Leu Asn Val His Arg  
 35 40 45

Arg Ile His Thr Gly Glu Lys Pro Phe Glu Cys Lys Asp Cys Gly Lys  
 50 55 60

Ala Phe Ile Gln Lys Ser Asn Leu Ile Arg His Gln Arg Thr His Thr  
 65 70 75 80

Gly Glu Lys Pro Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly Cys  
 85 90 95

Pro Ser Asn Leu Arg Arg His Gly Arg Thr His  
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<212> PRT

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 20 25 30

Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu Thr Arg His Arg  
 35 40 45

Arg Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Asp Cys Gly Lys  
 50 55 60

Ser Phe Ser Gln Ser Ser Leu Ile Arg His Gln Arg Thr His Thr  
 65 70 75 80

Gly Glu Lys Pro Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg  
 85 90 95

Ser Asp His Leu Lys Thr His Thr Arg Thr His  
 100 105

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 20 25 30

His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu Asn Val His Lys  
 35 40 45

Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly Lys  
 50 55 60

Ser Phe Arg Gln Ser Thr His Leu Thr Arg His Arg Arg Ile His Thr  
 65 70 75 80

Gly Glu Lys Pro Phe Glu Cys Lys Asp Cys Gly Lys Ala Phe Ile Gln  
 85 90 95

Lys Ser Asn Leu Ile Arg His Gln Arg Thr His  
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 20 25 30

Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu Lys Thr  
 35 40 45

His Thr Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys  
 50 55 60

Gly Lys Ala Phe Thr Gln Ser Ser Asn Leu Thr Lys His Lys Lys Ile  
 65 70 75 80

His Thr Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly Lys Ser Phe  
 85 90 95

Arg Gln Ser Thr His Leu Thr Arg His Arg Arg Ile His  
 100 105

&lt;210&gt; 57

&lt;211&gt; 13

&lt;212&gt; PRT

&lt;213&gt; Simian parainfluenza virus 5

&lt;400&gt; 57

Gly Lys Pro Ile Pro Asn Pro Leu Leu Gly Leu Asp Ser  
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&lt;210&gt; 58

&lt;211&gt; 89

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

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Arg Ser Asp Glu Leu Thr Arg His Ile Arg Ile His Thr Gly Gln Lys  
 20 25 30

Pro Phe Gln Cys Arg Ile Cys Met Arg Asn Phe Ser Arg Ser Asp His  
 35 40 45

Leu Thr Thr His Ile Arg Thr His Thr Gly Glu Lys Pro Phe Ala Cys  
 50 55 60

Asp Ile Cys Gly Arg Lys Phe Ala Arg Ser Asp Glu Arg Lys Arg His  
 65 70 75 80

Thr Lys Ile His Leu Arg Gln Lys Asp  
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<222> (23)..(27)
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Arg Arg His Gly Arg Thr His  
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<210> 61  
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<400> 61  
Tyr Gln Cys Asn Ile Cys Gly Lys Cys Phe Ser Cys Asn Ser Asn Leu  
1 5 10 15

His Arg His Gln Arg Thr His  
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<210> 62  
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<212> PRT  
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Arg Arg His Cys Ile Leu His  
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<210> 63  
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<212> PRT  
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<400> 63  
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1 5 10 15

Asn Arg His Arg Arg Thr His  
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&lt;210&gt; 64

&lt;211&gt; 23

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 64

Tyr Lys Cys Lys Glu Cys Gly Lys Ala Phe Asn His Ser Ser Asn Phe  
1 5 10 15Asn Lys His His Arg Ile His  
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&lt;210&gt; 65

&lt;211&gt; 23

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 65

Phe Lys Cys Pro Val Cys Gly Lys Ala Phe Arg His Ser Ser Ser Leu  
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&lt;210&gt; 66

&lt;211&gt; 24

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 66

Tyr Arg Cys Lys Tyr Cys Asp Arg Ser Phe Ser Ile Ser Ser Asn Leu  
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&lt;210&gt; 67

&lt;211&gt; 23

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 67

Tyr Glu Cys Asp His Cys Gly Lys Ala Phe Ser Ile Gly Ser Asn Leu  
1 5 10 15Asn Val His Arg Arg Ile His  
20

&lt;210&gt; 68

&lt;211&gt; 23

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

<400> 68  
Tyr Gly Cys His Leu Cys Gly Lys Ala Phe Ser Lys Ser Ser Asn Leu  
1 5 10 15

Arg Arg His Glu Met Ile His  
20

<210> 69  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 69  
Tyr Lys Cys Lys Glu Cys Gly Gln Ala Phe Arg Gln Arg Ala His Leu  
1 5 10 15

Ile Arg His His Lys Leu His  
20

<210> 70  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 70  
Tyr Lys Cys His Gln Cys Gly Lys Ala Phe Ile Gln Ser Phe Asn Leu  
1 5 10 15

Arg Arg His Glu Arg Thr His  
20

<210> 71  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 71  
Phe Gln Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu  
1 5 10 15

Leu Arg His Ile Lys Leu His  
20

<210> 72  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 72  
Tyr Ala Cys His Leu Cys Gly Lys Ala Phe Thr Gln Ser Ser His Leu  
1 5 10 15

Arg Arg His Glu Lys Thr His  
20

<210> 73  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 73  
Tyr Lys Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu  
1 5 10 15  
Thr Arg His Gln Lys Ile His  
20

<210> 74  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 74  
Tyr Ala Cys His Leu Cys Gly Lys Ala Phe Thr Gln Cys Ser His Leu  
1 5 10 15  
Arg Arg His Glu Lys Thr His  
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<210> 75  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 75  
Tyr Ala Cys His Leu Cys Ala Lys Ala Phe Ile Gln Cys Ser His Leu  
1 5 10 15  
Arg Arg His Glu Lys Thr His  
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<210> 76  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 76  
Tyr Val Cys Arg Glu Cys Gly Arg Gly Phe Arg Gln His Ser His Leu  
1 5 10 15  
Val Arg His Lys Arg Thr His  
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<210> 77  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 77  
Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu  
1 5 10 15

Thr Thr His Lys Ile Ile His  
20

<210> 78  
<211> 23  
<212> PRT  
<213> *Homo sapiens*

<400> 78  
Tyr Glu Cys Asp His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu  
1 5 10 15

Asn Val His Lys Arg Thr His  
20

<210> 79  
<211> 23  
<212> PRT  
<213> *Homo sapiens*

<400> 79  
Tyr Met Cys Ser Glu Cys Gly Arg Gly Phe Ser Gln Lys Ser Asn Leu  
1 5 10 15

Ile Ile His Gln Arg Thr His  
20

<210> 80  
<211> 23  
<212> PRT  
<213> *Homo sapiens*

<400> 80  
Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Thr Gln Ser Ser Asn Leu  
1 5 10 15

Thr Lys His Lys Lys Ile His  
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<210> 81  
<211> 23  
<212> PRT  
<213> *Homo sapiens*

<400> 81  
Phe Glu Cys Lys Asp Cys Gly Lys Ala Phe Ile Gln Lys Ser Asn Leu  
1 5 10 15

Ile Arg His Gln Arg Thr His  
20

<210> 82  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 82  
Tyr Val Cys Arg Glu Cys Arg Arg Gly Phe Ser Gln Lys Ser Asn Leu  
1 5 10 15

Ile Arg His Gln Arg Thr His  
20

<210> 83  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 83  
Tyr Glu Cys Glu Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Asn Leu  
1 5 10 15

Thr Arg His Lys Lys Ser His  
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<210> 84  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 84  
Tyr Glu Cys Asn Thr Cys Arg Lys Thr Phe Ser Gln Lys Ser Asn Leu  
1 5 10 15

Ile Val His Gln Arg Thr His  
20

<210> 85  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 85  
Tyr Val Cys Ser Lys Cys Gly Lys Ala Phe Thr Gln Ser Ser Asn Leu  
1 5 10 15

Thr Val His Gln Lys Ile His  
20

&lt;210&gt; 86

&lt;211&gt; 23

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 86

Tyr Lys Cys Asp Glu Cys Gly Lys Asn Phe Thr Gln Ser Ser Asn Leu  
1 5 10 15Ile Val His Lys Arg Ile His  
20

&lt;210&gt; 87

&lt;211&gt; 23

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 87

Tyr Glu Cys Asp Val Cys Gly Lys Thr Phe Thr Gln Lys Ser Asn Leu  
1 5 10 15Gly Val His Gln Arg Thr His  
20

&lt;210&gt; 88

&lt;211&gt; 23

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 88

Tyr Glu Cys Val Gln Cys Gly Lys Gly Phe Thr Gln Ser Ser Asn Leu  
1 5 10 15Ile Thr His Gln Arg Val His  
20

&lt;210&gt; 89

&lt;211&gt; 23

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 89

Tyr Lys Cys Pro Asp Cys Gly Lys Ser Phe Ser Gln Ser Ser Leu  
1 5 10 15Ile Arg His Gln Arg Thr His  
20

&lt;210&gt; 90

&lt;211&gt; 23

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

<400> 90  
Tyr Glu Cys Gln Asp Cys Gly Arg Ala Phe Asn Gln Asn Ser Ser Leu  
1 5 10 15

Gly Arg His Lys Arg Thr His  
20

<210> 91  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 91  
Tyr Glu Cys Asn Glu Cys Gly Lys Phe Phe Ser Gln Ser Ser Ser Leu  
1 5 10 15

Ile Arg His Arg Arg Ser His  
20

<210> 92  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 92  
Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Asn Gln Ser Ser Thr Leu  
1 5 10 15

Thr Arg His Lys Ile Val His  
20

<210> 93  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 93  
Tyr Glu Cys Asn Glu Cys Gly Lys Ala Phe Ala Gln Asn Ser Thr Leu  
1 5 10 15

Arg Val His Gln Arg Ile His  
20

<210> 94  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 94  
Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu  
1 5 10 15

Thr Gln His Arg Arg Ile His  
20

<210> 95  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 95  
Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu  
1 5 10 15  
Thr Arg His Arg Arg Ile His  
20

<210> 96  
<211> 22  
<212> PRT  
<213> Homo sapiens

<400> 96  
His Lys Cys Leu Glu Cys Gly Lys Cys Phe Ser Gln Asn Thr His Leu  
1 5 10 15  
Thr Arg His Gln Arg Thr  
20

<210> 97  
<211> 25  
<212> PRT  
<213> Homo sapiens

<400> 97  
Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe Ala Arg Ser Asp  
1 5 10 15  
Glu Leu Asn Arg His Lys Lys Arg His  
20 25

<210> 98  
<211> 25  
<212> PRT  
<213> Homo sapiens

<400> 98  
Tyr His Cys Asp Trp Asp Gly Cys Gly Trp Lys Phe Ala Arg Ser Asp  
1 5 10 15  
Glu Leu Thr Arg His Tyr Arg Lys His  
20 25

<210> 99  
<211> 25  
<212> PRT  
<213> Homo sapiens

<400> 99  
Tyr Arg Cys Ser Trp Glu Gly Cys Glu Trp Arg Phe Ala Arg Ser Asp  
1 5 10 15

Glu Leu Thr Arg His Phe Arg Lys His  
20 25

<210> 100  
<211> 25  
<212> PRT  
<213> Homo sapiens

<400> 100  
Phe Ser Cys Ser Trp Lys Gly Cys Glu Arg Arg Phe Ala Arg Ser Asp  
1 5 10 15

Glu Leu Ser Arg His Arg Arg Thr His  
20 25

<210> 101  
<211> 25  
<212> PRT  
<213> Homo sapiens

<400> 101  
Phe Ala Cys Ser Trp Gln Asp Cys Asn Lys Lys Phe Ala Arg Ser Asp  
1 5 10 15

Glu Leu Ala Arg His Tyr Arg Thr His  
20 25

<210> 102  
<211> 25  
<212> PRT  
<213> Homo sapiens

<400> 102  
Tyr His Cys Asn Trp Asp Gly Cys Gly Trp Lys Phe Ala Arg Ser Asp  
1 5 10 15

Glu Leu Thr Arg His Tyr Arg Lys His  
20 25

<210> 103  
<211> 24  
<212> PRT  
<213> Homo sapiens

<400> 103  
Phe Leu Cys Gln Tyr Cys Ala Gln Arg Phe Gly Arg Lys Asp His Leu  
1 5 10 15

Thr Arg His Met Lys Lys Ser His  
20

<210> 104  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 104  
Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu  
1 5 10 15

Lys Thr His Thr Arg Thr His  
20

<210> 105  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 105  
Phe Ala Cys Glu Val Cys Gly Val Arg Phe Thr Arg Asn Asp Lys Leu  
1 5 10 15

Lys Ile His Met Arg Lys His  
20

<210> 106  
<211> 25  
<212> PRT  
<213> Homo sapiens

<400> 106  
Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe Ala Arg Ser Asp  
1 5 10 15

Lys Leu Asn Arg His Lys Lys Arg His  
20 25

<210> 107  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 107  
Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu  
1 5 10 15

Thr Arg His Gln Arg Ile His  
20

<210> 108

<211> 23

<212> PRT

<213> Homo sapiens

<400> 108

Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu  
1 5 10 15

Ile Arg His Gln Arg Thr His  
20

<210> 109

<211> 23

<212> PRT

<213> Homo sapiens

<400> 109

Tyr Leu Cys Ser Glu Cys Asp Lys Cys Phe Ser Arg Ser Thr Asn Leu  
1 5 10 15

Ile Arg His Arg Arg Thr His  
20

<210> 110

<211> 23

<212> PRT

<213> Homo sapiens

<400> 110

Tyr Glu Cys Lys Glu Cys Gly Lys Ala Phe Ser Ser Gly Ser Asn Phe  
1 5 10 15

Thr Arg His Gln Arg Ile His  
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<210> 111

<211> 23

<212> PRT

<213> Homo sapiens

<400> 111

Tyr Glu Cys Asp His Cys Gly Lys Ala Phe Ser Val Ser Ser Asn Leu  
1 5 10 15

Asn Val His Arg Arg Ile His  
20

<210> 112

<211> 23

<212> PRT

<213> Homo sapiens

<400> 112  
Tyr Thr Cys Lys Gln Cys Gly Lys Ala Phe Ser Val Ser Ser Ser Leu  
1 5 10 15

Arg Arg His Glu Thr Thr His  
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<210> 113  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 113  
Tyr Glu Cys Asn Tyr Cys Gly Lys Thr Phe Ser Val Ser Ser Thr Leu  
1 5 10 15

Ile Arg His Gln Arg Ile His  
20

<210> 114  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 114  
Tyr Arg Cys Glu Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu  
1 5 10 15

Thr Arg His Lys Arg Ile His  
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<210> 115  
<211> 6  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<220>  
<221> MOD\_RES  
<222> (3)  
<223> Glu or Gln

<220>  
<221> MOD\_RES  
<222> (4)  
<223> Lys or Arg

<220>  
<221> MOD\_RES  
<222> (6)  
<223> Tyr or Phe

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<400> 115
Thr Gly Xaa Xaa Pro Xaa
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<210> 116
<211> 28
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<220>
<221> MOD_RES
<222> (1)
<223> Phe or Tyr

<220>
<221> MOD_RES
<222> (2)
<223> variable amino acid

<220>
<221> MOD_RES
<222> (4)..(8)
<223> region may encompass 2-5 variable amino acids

<220>
<221> MOD_RES
<222> (10)..(12)
<223> variable amino acid

<220>
<221> MOD_RES
<222> (13)
<223> Phe or Tyr

<220>
<221> MOD_RES
<222> (14)
<223> variable amino acid

<220>
<221> MOD_RES
<222> (16)
<223> variable amino acid

<220>
<221> MOD_RES
<222> (19)
<223> hydrophobic amino acid

<220>
<221> MOD_RES
<222> (20)
<223> variable amino acid
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<220>
<221> MOD_RES
<222> (23)..(27)
<223> region may encompass 3-5 variable amino acids

<400> 116
Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa Xaa Xaa Xaa Xaa Cys Xaa
1 5 10 15

Ser Asn Xaa Xaa Arg His Xaa Xaa Xaa Xaa Xaa His
20 25

<210> 117
<211> 267
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      nucleotide sequence

<400> 117
atcgataaggc taattctcac tcattaggca ccccaggcct tacactttat gcttccggct 60
cgtataatgt gtggattgt gagcggataa caatttcaca cagggaaacag cgtccatggg 120
taagcctatc cctaaccctc tcctcggtct cgattctaca caagctatgg gtgctcctcc 180
aaaaaaaaaagc agaaaggtag ctggatccac tagtaacggc cgccagtgtg ctgaaattct 240
gcagatatcc atcacactgg cggccgc 267

<210> 118
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
      peptide

<400> 118
Phe Met Cys Thr Trp Ser Tyr Cys Gly Lys Arg Phe Thr Asp Arg Ser
1 5 10 15

Ala Leu Ala Arg His Lys Arg Thr His
20 25

<210> 119
<211> 23
<212> PRT
<213> Homo sapiens

<400> 119
Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly Cys Pro Ser Asn Leu
1 5 10 15

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Arg Arg His Gly Arg Thr His  
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<210> 120  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 120  
Tyr Thr Cys Ser Asp Cys Gly Lys Ala Phe Arg Asp Lys Ser Cys Leu  
1 5 10 15

Asn Arg His Arg Arg Thr His  
20

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<210> 121  
<211> 25  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 121  
Tyr Ala Cys Pro Val Glu Ser Cys Asp Arg Arg Phe Ser Asp Ser Ser  
1 5 10 15

Asn Leu Thr Arg His Ile Arg Ile His  
20 25

<210> 122  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 122  
Phe Lys Cys Pro Val Cys Gly Lys Ala Phe Arg His Ser Ser Ser Leu  
1 5 10 15

Val Arg His Gln Arg Thr His  
20

<210> 123  
<211> 24  
<212> PRT  
<213> Homo sapiens

<400> 123  
Tyr Arg Cys Lys Tyr Cys Asp Arg Ser Phe Ser Ile Ser Ser Asn Leu  
1 5 10 15

Gln Arg His Val Arg Asn Ile His  
20

<210> 124  
 <211> 23  
 <212> PRT  
 <213> Homo sapiens

<400> 124  
 Tyr Lys Cys His Gln Cys Gly Lys Ala Phe Ile Gln Ser Phe Asn Leu  
 1 5 10 15  
 Arg Arg His Glu Arg Thr His  
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<210> 125  
 <211> 23  
 <212> PRT  
 <213> Drosophila sp.

<400> 125  
 Tyr Thr Cys Ser Tyr Cys Gly Lys Ser Phe Thr Gln Ser Asn Thr Leu  
 1 5 10 15  
 Lys Gln His Thr Arg Ile His  
 20

<210> 126  
 <211> 23  
 <212> PRT  
 <213> Homo sapiens

<400> 126  
 Tyr Glu Cys Asp His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu  
 1 5 10 15  
 Asn Val His Lys Arg Thr His  
 20.

<210> 127  
 <211> 23  
 <212> PRT  
 <213> Homo sapiens

<400> 127  
 Tyr Met Cys Ser Glu Cys Gly Arg Gly Phe Ser Gln Lys Ser Asn Leu  
 1 5 10 15  
 Ile Ile His Gln Arg Thr His  
 20

<210> 128  
 <211> 23  
 <212> PRT  
 <213> Homo sapiens

<400> 128  
Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Thr Gln Ser Ser Asn Leu  
1 5 10 15

Thr Lys His Lys Lys Ile His  
20

<210> 129  
<211> 23  
<212> PRT  
<213> *Homo sapiens*

Ile Arg His Gln Arg Thr His  
20

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<210> 130
<211> 23
<212> PRT
<213> Homo sapiens
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<400> 130  
Tyr Val Cys Ser Lys Cys Gly Lys Ala Phe Thr Gln Ser Ser Asn Leu  
1 5 10 15

Thr Val His Gln Lys Ile His  
20

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<210> 131
<211> 23
<212> PRT
<213> Homo sapiens
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<400> 131  
Tyr Lys Cys Pro Asp Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser Leu  
1 5 10 15

Ile Arg His Gln Arg Thr His  
20

<210> 132  
<211> 23  
<212> PRT  
<213> *Homo sapiens*

<400> 132  
Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu  
1 5 10 15

Thr Gln His Arg Arg Ile His  
20

<210> 133  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 133  
Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu  
1 5 10 15

Thr Arg His Arg Arg Ile His  
20

<210> 134  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 134  
Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu  
1 5 10 15

Lys Thr His Thr Arg Thr His  
20

<210> 135  
<211> 25  
<212> PRT  
<213> Homo sapiens

<400> 135  
Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys Phe Ala Arg Ser Asp  
1 5 10 15

Lys Leu Asn Arg His Lys Lys Arg His  
20 25

<210> 136  
<211> 23  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
peptide

<400> 136  
Phe Ala Cys Pro Glu Cys Pro Lys Arg Phe Met Arg Ser Asp Asn Leu  
1 5 10 15

Thr Gln His Ile Lys Thr His  
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<210> 137  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 137  
Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu  
1 5 10 15  
Thr Arg His Gln Arg Ile His  
20

<210> 138  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 138  
Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu  
1 5 10 15  
Ile Arg His Gln Arg Thr His  
20

<210> 139  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 139  
Tyr Glu Cys Asp His Cys Gly Lys Ala Phe Ser Val Ser Ser Asn Leu  
1 5 10 15  
Asn Val His Arg Arg Ile His  
20

<210> 140  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 140  
Tyr Thr Cys Lys Gln Cys Gly Lys Ala Phe Ser Val Ser Ser Leu  
1 5 10 15  
Arg Arg His Glu Thr Thr His  
20

<210> 141  
<211> 23  
<212> PRT  
<213> Homo sapiens

<400> 141  
 Tyr Glu Cys Asn Tyr Cys Gly Lys Thr Phe Ser Val Ser Ser Thr Leu  
 1 5 10 15

Ile Arg His Gln Arg Ile His  
 20

<210> 142  
 <211> 23  
 <212> PRT  
 <213> Homo sapiens

<400> 142  
 Tyr Arg Cys Glu Glu Cys Gly Lys Ala Phe Arg Trp Pro Ser Asn Leu  
 1 5 10 15  
 Thr Arg His Lys Arg Ile His  
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<210> 143  
 <211> 12  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
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<400> 143  
 daadaaaaath ga 12

<210> 144  
 <211> 13  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic  
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<220>  
 <221> modified\_base  
 <222> (10)  
 <223> a, c, g, t, unknown or other

<400> 144  
 gyagrahgan ggk 13

<210> 145  
 <211> 12  
 <212> DNA  
 <213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 145  
hgaaathgag gt

12

<210> 146  
<211> 12  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 146  
gragragggg ra

12

<210> 147  
<211> 12  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>  
<221> modified\_base  
<222> (7)  
<223> a, c, g, t, unknown or other

<400> 147  
grahganggg tc

12

<210> 148  
<211> 12  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 148  
gragragggh ga

12

<210> 149  
<211> 12  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<400> 149  
gavgaaaath ga

12

<210> 150  
<211> 12  
<212> DNA  
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<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>  
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<222> (1)  
<223> a, c, g, t, unknown or other

<400> 150  
nggyagraa at

12

<210> 151  
<211> 13  
<212> DNA  
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<220>  
<223> Description of Artificial Sequence: Synthetic  
oligonucleotide

<220>  
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<223> a, c, g, t, unknown or other

<400> 151  
gaagrahgan ggk

13

<210> 152  
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<212> DNA  
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<220>  
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oligonucleotide

<220>  
<221> modified\_base  
<222> (7)  
<223> a, c, g, t, unknown or other

<400> 152  
gradaanggg tc

12

<210> 153  
<211> 12  
<212> DNA  
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<220>  
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oligonucleotide

<220>  
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<223> a, c, g, t, unknown or other

<400> 153  
gaagrahgan gg

12

<210> 154  
<211> 189  
<212> PRT  
<213> Escherichia coli

<400> 154  
Met Lys Arg Leu Ile Val Gly Ile Ser Gly Ala Ser Gly Ala Ile Tyr  
1 5 10 15  
Gly Val Arg Leu Leu Gln Val Leu Arg Asp Val Thr Asp Ile Glu Thr  
20 25 30  
His Leu Val Met Ser Gln Ala Ala Arg Gln Thr Leu Ser Leu Glu Thr  
35 40 45  
Asp Phe Ser Leu Arg Glu Val Gln Ala Leu Ala Asp Val Thr His Asp  
50 55 60  
Ala Arg Asp Ile Ala Ala Ser Ile Ser Ser Gly Ser Phe Gln Thr Leu  
65 70 75 80  
Gly Met Val Ile Leu Pro Cys Ser Ile Lys Thr Leu Ser Gly Ile Val  
85 90 95  
His Ser Tyr Thr Asp Gly Leu Leu Thr Arg Ala Ala Asp Val Val Leu  
100 105 110  
Lys Glu Arg Arg Pro Leu Val Leu Cys Val Arg Glu Thr Pro Leu His  
115 120 125  
Leu Gly His Leu Arg Leu Met Thr Gln Ala Ala Glu Ile Gly Ala Val  
130 135 140  
Ile Met Pro Pro Val Pro Ala Phe Tyr His Arg Pro Gln Ser Leu Asp  
145 150 155 160

Asp Val Ile Asn Gln Thr Val Asn Arg Val Leu Asp Gln Phe Ala Ile  
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Thr Leu Pro Glu Asp Leu Phe Ala Arg Trp Gln Gly Ala  
180 185

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<223> a, c, g, t, unknown or other

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gctgranggg ah

12